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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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DISEASES of the NERVOUS SYSTEM

(PUBLISHED MONTHLY)

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Essentials of Veteran's Rehabilitation*

CAPTAIN FRANCIS J. BRACELAND
(MC), USNR

The demonstrations of unrest and turmoil which have followed in the wake of all wars, ancient and modern, indicate that the transformation of a nation geared to war to a peacetime status is not accomplished easily. During the period of actual conflict, men demonstrate their willingness to die for a cause and for the welfare of their fellowmen. If this willingness to sacrifice and to work for a common cause on the part of both soldier and civilian could be carried over through the post-war years, there would be little need to be concerned about the nation's welfare in the next decade. Unhappily, the cessation of hostilities has all too frequently signified the ending of this display of altruism, and the unity and singleness of purpose which the war occasioned are soon forgotten.

At the present time, however, one encouraging sign is discernible. Though the end of the war is not yet in sight, people are beginning to think about post-war problems. In the midst of war we are preparing for peace. The problem of the rehabilitation of the returning veteran is being given careful consideration by various groups. This cannot help but have a salutary effect, providing rehabilitation procedures are kept within proper bounds and there is no meddling in problems which require professional attention. By considering carefully various aspects of the rehabilitation program now, we may be able to prevent, or at least mitigate, that breakdown of idealism and growth of disillusionment which heretofore have presented such difficult problems.

Broadly speaking, rehabilitation programs may be said to have two phases. The first or military phase is carried on within the framework of the military organization and before the man is discharged from the Service. The second or civilian phase is begun upon the return of the veteran to his civilian community. Both of these phases are of equal importance, although the second is longer lasting and has more implications than does the military phase. Upon the satisfactory handling of both of these phases of the rehabilitation program depends to a great extent the adaptation of more than eleven million citizens.

The Navy, aware of the importance and magnitude of the rehabilitation problem, has formulated and is carrying out a large-scale program directed toward the satisfactory conclusion of the military phase of the problem. This program has now been expanded to such a degree that the basic idea of treatment and reconditioning is operative from the time the individual becomes a casualty until he is either ready to return to duty or to be discharged from the Service. I specify

* Presented at the forty-third annual convention of the New Jersey Welfare Council, New York City, November 29, 1944.

the rehabilitation of casualties at this time because it is only those who are wounded or have been ill or those who can no longer adapt who are being discharged from the Service at the present time. The manner in which we handle the present group could well be considered a dress rehearsal for the task which will face us at the end of the war.

In psychiatry, as in all branches of medicine, the most important form of treatment is prevention, and therefore the work of the psychiatrist in rehabilitation begins with the recruit's first contact with the Service in the neuropsychiatric screening of inductees. This elimination of potential psychiatric casualties at induction and training centers removes men whose retention would not only be deleterious to the Service, but who would in all probability break under the pressure of military service. By means of the elimination of the emotionally unfit, the burden of future rehabilitation is lightened considerably.

Space does not permit a detailed description of each phase of the naval rehabilitation procedure. Suffice it to say that naval psychiatrists have been instructed to keep the idea of early treatment of casualties in their minds at all times. Psychiatrists are at present working close to the scene of action and upon detection of potential casualties or receipt of actual ones, they make a quick estimate of the seriousness of the situation and the length of time it will take to return the man to duty. The entire theatre of war is covered with a network of base, mobile and fleet hospitals, and psychiatrists are members of the staff of each of them. There are psychiatrists aboard all hospital and ambulance ships which transport the wounded from one area to another.

If it is obvious that the patients will require lengthy treatment or that they will be unable to return to duty, they are returned to the United States at the earliest opportunity. Here they are again carefully observed and treated in the psychiatric divisions of general or convalescent hospitals. Psychotic patients are transferred either to the Navy units in St. Elizabeth's Hospital, Washington, D. C., or to the U. S. Public Health Service Hospital at Ft. Worth, Texas. The recovery rate among these men is quite high.

The main deviation from civilian psychiatric treatment methods to be found in naval hospitals is the widespread use of group therapy. Begun as an expedient, it has come into its own as an extremely useful form of therapy. One prominent civilian psychiatrist has stated that it is the most valuable therapeutic method which as yet has come out of this war. Through the use of group therapy, the Navy is able to accomplish the greatest good for the greatest number. Undoubtedly it would be advantageous for civilian psychiatrists, who will have large-scale problems of rehabilitation confronting them after the war, to examine the usefulness of this method.

Before leaving our discussion of the military phase of rehabilitation, it would be well to recall to mind the fact that the naval psychiatrist's duty is to return as many men to duty as is possible. The main purpose of the Navy, its *raison d'etre,* is to fight, and the prime function of the Navy doctor is to keep men fit to fight. If it is not possible to return a man to duty, however, it is our purpose to return the man to his community in the best possible condition. Before discharging him to his home, every effort is made to make him a better citizen.

The civilian phase of the rehabilitation program is extremely important for it is the civilian community which will prepare the environment to which the man returns. It can be said that our country has had a veteran problem ever since it was founded, yet thus far we have never handled it very wisely. After each of our major wars, we have been found unprepared for the transition of the men from a military to a civilian status. It was not until the close of World War I that sufficient attention was paid to the fact that the nation had a definite responsibility for the complete care of the wholly disabled and for the re-education and rehabilitation of those who were partially disabled.

Fortunately, we now realize that no price is too great to pay providing we *really* rehabilitate our returning veterans, paying particular attention to the continued educa-

tion of those whose training was interrupted by the outbreak of the war. Our duty to these men is not completed when we meet them with brass bands and attend dinners in their honor. In keeping this in mind, we must remember that the great need is to help them to help themselves. Anything which savors of destroying their initiative or making them passive receivers of gratuities is to be decried.

The first and perhaps the greatest adjustment the veteran is called upon to make is the change from military to civilian psychological attitudes. Upon entering the Service, the man had help in directing his actions; there were Army and Navy tradition, the Manual of Arms and various military manuals, plus the help of sergeants and petty officers. There are no such aids to help the man learn how to be a civilian again. Upon entering the Service, the man is told what to do and he does it. He takes orders and asks no questions, for he lives under the firm compulsion of military regulations. Upon his return to civilian life, he must learn once more to assume the burden of responsibility for his decisions and his actions without orders from above.

To a certain extent the veteran has lost the faculty of dealing with civilians. He has been used to the camaraderie of group living with all its drawbacks and its compensations. His return to a world of unrestricted and undirected competition and individual enterprise will mean the loss of the feeling of security which he had acquired by membership in his "outfit."

Throughout his entire military experience, the individual soldier and sailor has thought and dreamed constantly of one thing—of getting home. Every deck he swabbed, every shell he fired, and every day he passed was ticked off with the knowledge that it was bringing him closer to his home and family. The reality of that home and family cannot be as ideal for some as the picture of them which the men have painted for themselves. There has been more of a gulf created between the old version of home and the present new one than the soldier suspects. He will return to an environment which has changed and which will present new problems of adjustment. Some disillusionment will be inevitable.

The first essential of the civilian phase of the veterans' readjustment might be called the social and family readaptation. The degree and speed with which the returning veterans will make this adjustment depend upon the understanding they find in the civilian population and the manner in which families and friends meet the problems which the veterans' return will present. Some of the following suggestions may be of assistance in advising and helping the families to understand the comparative stranger who will return to their midst:

1) First and foremost, it is necessary for members of the family and the community to follow one of the most important rules of medicine, namely, "if you can't do good, do no harm." If the returned veteran is in need of medical or psychiatric care, provision will already have been made for him to have it. The most dangerous thing a layman can do is to assume the role of amateur psychiatrist or psychologist and interfere in a problem which requires treatment at a skilled professional level. The increasing popularization of psychiatric medicine in lay literature and in the public press and the present flood of popular articles on neuropsychiatric problems of the war are not unmixed blessings. They raise the constant hazard that some amateurs will become versed in the superficial aspects of emotional problems and will be unable to resist the temptation to try their hand at pseudo-therapy. One admonition for all concerned with returning veterans to follow is "do not play doctor." If professional attention is necessary, it can be secured from experienced and competent professional organizations.

2) There should be readiness on the part of the family to listen to things the veteran is willing to talk about, rather than curious prying into experiences he has undergone. Typical of most of the returning veterans, the late Justice Oliver Wendell Holmes, Jr., is said to have remarked after his return from the Civil War that it was incredible to him that "people would ask for stories of the battlefield as for tales of the circus or a boat race on the River Charles." When the

men are ready to discuss their experiences, they will do so. Some never will speak about them, and it will not be wise to attempt to draw them out on the subject.

3) Relatives must be willing to accept the fact that the veteran has changed, has grown up and matured. Though he may have been but a high school boy when he left home, the training and experiences which he has undergone have changed him, and any misguided efforts to relegate him to a dependent position again will meet with resistance.

4) Families whose sons' accomplishments have been rewarded with medals or commendation should welcome this with quiet understanding and not persist in discussing the man's heroic actions or alluding to his heroism. Many of the veterans believe that the real heroes were left "out there," and they will not take kindly to efforts to exploit or display their own accomplishments. They are all proud of any recognition which they received, but it is a quiet, personal pride in successful achievement.

5) Men who have been wounded badly or scarred will have a difficult problem of their own while they are making their adjustment to civilian life. Their latent insecurity should not be increased by inept handling on the part of their families. In the last analysis, it is the spirit of the man which motivates him, and if that remains high, he will overcome all obstacles. It is futile to attempt to ignore wounds and scars, but likewise it is unnecessary to focus attention upon them. These men should be treated as normal and competent people who have already done one good job and who are going to carry on successfully in the new one.

6) It should be realized that there will be some restlessness in these men while they are making the necessary adjustments. They should be encouraged to work or go to school or carry out whatever plans they have for their future. Misguided attempts to hurry or push them into things which they are hesitant to undertake will inevitably end in failure.

The next essential thing for the veteran's rehabilitation is work of some kind, for there is nothing so debilitating, so fatiguing, or so destructive to morale as idleness. When he will return to work may be left in the hands of the man himself. He should be encouraged to return to work but never pushed or dragooned into it. The government has recognized the need for jobs for all and has promised to provide them. Legislation has already been passed which guarantees the returning veteran his old job if he desires to return to it. Some of them will so desire, while others having had experience in new fields of endeavor, will want to improve their position and seek new employment. Approximately one-third of the men went into the Service directly from school and will have no work record to present to prospective employers. These men should be encouraged to seek work in accordance with their vocational aptitudes which will have been determined by various psychometric and vocational aptitude tests given during their military service or at the time of their discharge. A counselling service in the community, under the joint direction of the existing educational and mental hygiene associations, integrated with the veterans' rehabilitation program would pay dividends to both the man and the community.

One thing community organizations can do is to undertake a widespread campaign to educate employers and industry on the value of the services of men who are partially handicapped. It was only under the stress of war and the manpower shortage that most of the employers were willing to consider the hiring of those who were handicapped. Several large manufacturers had previously opened some jobs to the handicapped and they were amply repaid for their foresight. There is nothing which will aid a partially disabled person to rehabilitate himself so quickly and thoroughly as will gainful employment. There are jobs which these people can do as well as or even better than the normal person. The task is to find suitable opportunities for suitable people, and that would be an extremely worthwhile undertaking for civilian groups.

Another essential phase of the general rehabilitation program for veterans is concerned with the question of education. For

many of the men this will present a fertile field for the development of conflicts. A considerable number of men will be torn between two desires, that of securing higher education on one hand and on the other, anxiety to make up for lost time by establishing themselves in lucrative employment, starting a home and founding a family. Here again the need for wise counselling becomes apparent. It is distressing to see a man fail to achieve the place he might attain because of his lack of education and training, but it is equally distressing to see a man being prepared for a job or profession for which he is unfitted by nature. Following the last war, many men who might have been expert mechanics or fine tradesmen wasted their time by misguided efforts to enter the professions. This was due to the haste and lack of foresight in which the post-war educational programs were conceived and administered.

There is a distressing misconception prevalent in many places that the so-called white collar jobs are more dignified than the practice of the trades or crafts. This unfortunate and fallacious idea fails entirely to take into consideration the satisfaction which comes from any job, providing it is well done. It overlooks the homely truth that an industrious and capable craftsman is of far greater worth to himself and the community than is the maladroit and misplaced lawyer or doctor. Aptitude and capability should be the determining factors in the selection of a life work for veterans, and fortunately these attributes can now be determined satisfactorily by means of psychometric and vocational aptitude testing. These tests, of course, should be integral parts of all counselling programs.

The military service has demonstrated one thing which should not escape our attention, and that is that when technicians are needed, they can be trained quickly and in substantial numbers. Not so with leaders, however. For the most part, they require a longer training and much broader experience. Educators can render a great service to the community by encouraging individuals who give promise and who demonstrate likely qualities of leadership. While the shibboleth has been exploded long since that every soldier carries a field marshal's baton in his knapsack, it is probable that many men who might have been capable leaders have remained undiscovered through lack of opportunity to display their abilities. The provisions of the so-called G.I. Bill of Rights include the financial aids and opportunities for the education of veterans, but it is up to our educators and our communities to help each man find his proper niche.

There is another equally important thing to be kept in mind. Even though studies necessarily become vocational, the claims of intellectual life in the wider sense must not be denied. The needs of the man must not be forgotten in providing for the needs of the breadwinner. The vocation is only an element in the whole undertaking of living. In the end, education will have proved vain if the professional task has been a success and the life task a failure. Military service has broadened the intellectual horizons of millions of men. It will require an aggressive program of adult education if the social gain represented by this broadening is not to be lost.

Rehabilitation is not something that "follows" a war; it is an essential part of the prosecution of any war. Only if we push our present plans for rehabilitation with the same energy and determination, the same idealism and the same devotion to the common good that has marked our nation under fire, can we attain full victory and a genuinely victorious completion of this war.

AUTHOR'S NOTE—The opinions and assertions contained herein are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service as a whole.

INVEST IN VICTORY — BUY MORE WAR BONDS

Amimia or Emotional Paralysis of the Face

LOUIS J. KARNOSH, M.D.
Cleveland, Ohio

Amimia is a generic term which has been taken over by the neurologist to signify an emotional paralysis of the facial muscles. More specifically it means a loss of the ability to smile on one side or the loss of the spontaneous, involuntary movements about the mouth which express feeling and which are usually merged with the strictly volitional activity of the lips while the individual is speaking.

Apparently the older neurologists of a century ago displayed more interest in the subject of amimia than have the modern clinicians. In 1837 Stromeyer[1] described a case of hemiplegia with unilateral amimia, and in 1844 Charles Bell[2] in his classic "Anatomy of Expression" drew attention to the same phenomenon. "In short," he concluded, "you find that your patient sometimes exhibits paralysis of the side of the face only when he smiles or laughs." In 1879 Nothnagel[3] ventured an anatomical basis for this form of facial weakness and expressed the opinion that the inability to smile was always due to a lesion which implicated the thalamus.

The average neurological examination of hemiplegic patients who are most likely to show a paralysis of smiling on the affected side, rarely includes any special comment on the emotional control of the facial muscles. The notation which is generally found is one which merely points to the familiar voluntary weakness of the angle of the mouth in the act of exposing the teeth while the movements about the eye and nose remain intact, the so-called "lower facial" paralysis typical of hemiplegia.

That it is not always easy to recognize a true paralysis of smiling movements has been the experience of Allen[4] who examined 5000 patients at the National Hospital in London. A certain percentage of normal people, because of habit, may grimace or smile only on one side of the face. Disease of the temporomandibular joint, anomalies in facial musculature, pain in the jaws and malocclusion of the teeth may cause an asymmetry of the face during spontaneous smiling or grimacing.

A great deal depends upon the tact and experience of the examiner in detecting emotional paralysis of the angle of the mouth. Very frequently the best observations can be made during unguarded moments when the patient is unaware of the scrutiny of the physician. The patient is first asked to show the clenched teeth in order to determine whether or not there is a voluntary paralysis of the angle of the mouth. He is then made to smile, not to laugh boisterously. Simply asking the subject to smile is likely to produce a voluntary smirk—not a true mimetic response. Women usually smile spontaneously after an attempt at whistling. Men can be induced to smile spontaneously at a facetious remark or a casual joke.

For a period of five years a special study of emotional innervation of the face was made in patients with all types of hemiplegia who were admitted to Cleveland City Hospital. The clinical diagnoses included cerebral hemorrhage, thrombosis, brain tumor and other localizing lesions of the central nervous system. Because of stupor, confusion, psychosis and other factors which prevented satisfactory cooperation on the part of the patient, a large number of subjects were excluded from this study.

The prime objects of this study were to determine (1) how frequently one encounters an amimia in hemiplegia; (2) what clinical types of hemiplegia are more likely to include this phenomenon and (3) whether the sign has practical diagnostic value.

In a group of 330 patients with the orthodox picture of hemiplegia attributed to a lesion in the internal capsule, 36 or 11% were found to have some degree of emotional as well as voluntary paralysis of the angle of the mouth on the affected side.

Because it is assumed by various workers such as McLean[5] that in hemiplegias with

amimia there is usually an involvement of the thalamus, the above clinical material was further analyzed, and those cases which manifested sensory defects along with motor paralysis were sifted out of the larger group. Twenty-eight patients were found to have had evidence of thalamic defect in the form of hemianesthesia or hemihypo-esthesia. Out of this "thalamic" group of hemiplegic patients, twelve or 43% demonstrated an emotional or mimetic paralysis along with the voluntary paralysis of the one side of the mouth.

A third clinical group of hemiplegias was isolated by reason of the fact that the symptoms not only included hemiplegia and hemianesthesia but also a hemianopsia on the same side. This complicated form of hemiplegia is commonly recognized as being due to a thrombosis of the anterior choroidal artery (Abbie[6]). Of five patients falling in this category, three had an associated paralysis of smiling on the hemiplegic side.

One common clinical feature of these emotional defects in smiling which arise from lesions in and about the thalamus is that they are prone to be relatively mild. None of these emotional defects were detected when the face was in repose. They were noted only during moments of casual smiling and the asymmetry in the smile was quickly erased by exaggerated laughter, grimacing or crying.

In contrast to the mild amimias found in hemiplegias of internal capsule origin, the emotional defects at the angle of the mouth which were caused by brain stem lesions were found to be more pronounced and to be persistent and even exaggerated on the paralyzed side when the patient grimaced with laughter or pain.

In the present study the most severe forms of amimia were found to be due not to lesions in the thalamus or basal ganglia but to pathological changes in the reticular portion of the pons just above the facial nuclei. These mimetic forms of facial paralysis were invariably and erroneously recognized as incomplete types of Bell's palsy. The pitfalls one encounters in such a misinterpretation are forcefully brought out by Friedman and Sh[illegible].

Fig. 1. An intrapontine tumor with a mixed form of facial weakness. In the first photograph, the patient shows a weakness of voluntary movement on the left side of the mouth. In the second photograph, the patient was prompted to smile and shows a distinct amimia on the right side. This rather unusual motor dissociation is regarded as a true intrapontine syndrome.

It is most singular that the lesions which produced the most startling emotional defects about the angle of the mouth were gliomas arising in the tegmentum of the pons. Moreover, in some instances the emotional paralysis existed without the loss of voluntary control of the same area. In no other type of lesion was this motor dissociation of the face detected. In this series twelve cases of intrapontine gliomas were reviewed, and all were verified by necropsy. Only one patient presented a complete Bell's palsy while eleven demonstrated varying dissociations of motor function about the face. One patient revealed an emotional paralysis on one side of the face and a voluntary weakness on the opposite side (Fig. 1). Hence in this group of patients with facial motor defect 92% demonstrated some degree of amimia and in two instances this was the very earliest evidence of impending disaster.

Attempts were made to correlate clinical findings in reference to amimia with anatomical and pathological studies. Fifteen patients with simple hemiplegia and no amimia were examined post-mortem. The maximal extent of each lesion was traced or outlined on a coronal section of the brain taken through the motor facial cortex (Fig. 2).

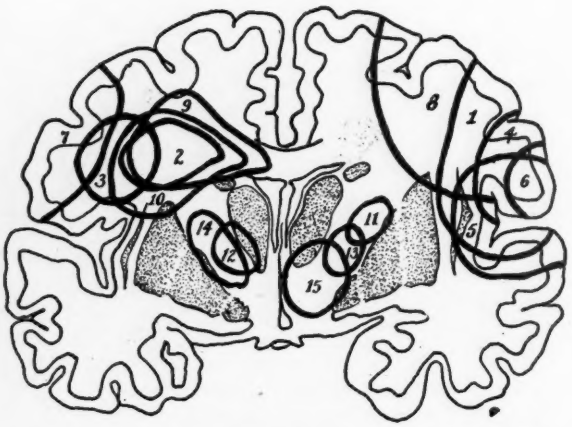

Fig. 2. A composite diagram showing the position of fifteen lesions which produced a hemiplegia but no paralysis of smiling. It is significant to point out that the basal ganglia are only moderately involved.

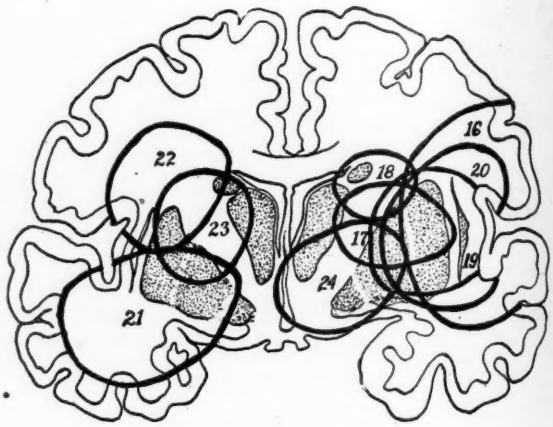

Fig. 3. A composite diagram showing the location of nine lesions which did produce an amimia. Outstanding is the extensive involvement of the basal ganglia in every instance.

The same tecrnique was applied to the necropsy material from nine patients with hemiplegia and with a mimetic paralysis (Fig. 3). It will be noted from a study of the diagrams that patients without amimia present lesions which tend to be more superficial, and those with amimia have focal brain disease which is more deeply seated and is generally located in the thalamic and striatal structures. Hence it appears to be a well sustained premise that amimia in a hemiplegic patient indicates that the lesion is one which either directly involves the deeper cerebral structures or compresses brain matter to the degree that these basal ganglia are secondarily involved.

Conclusions

In the routine examination of patients with the orthodox picture of hemiplegia, about one out of every ten shows a concomitant amimia on the paralyzed side.

Hemiplegias with evidence of associated thalamic disease show amimia six times more frequently than those which have no such sensory complication.

Amimias due to vascular lesions of the internal capsule and of adjacent structures are easily obliterated by more violent emotional grimacing as in laughing or crying.

Amimia due to brain stem lesions, such as intrapontine glioma are more pronounced and are not obliterated but may become exaggerated during excessive grimacing. The combined volitional and emotional defect may be so prominent as to approach the appearance of true peripheral or Bell's palsy.

Necropsy studies indicate that in hemiplegia, the mimetic defect on the paralyzed side indicates a deep-seated rather than a cortical location for the offending lesion.

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The Mentally Unfit: Detection, Elimination and Disposal*

WILLIAM C. MENNINGER
Colonel, Medical Corps

The fact that this title and subject was assigned to me as an Army medical officer indicated the committee's intention that they wished to have presented the Army's experience in dealing with this specific problem. On the other hand, the selection of title is somewhat unfortunate. As it stands, it suggests something in the class of poisoned food or damaged goods. Obviously, the designation "mentally unfit" refers to men mentally unfit for military service.

Even with this understanding, one must take into consideration the fact that the assignment of the subject was made many months ago. With the passing of time and the many intervening events, there is a change in attitude on the part of all of us towards this subject, both within and without the military forces. There is a corresponding change in our aims, and a very great change in our problems. Eight months ago we were still in the process of mobilizing. We were building an Army by converting civilians to the military. Now our major problems are concerned with the maintenance of an Army, and soon we hope we may be considering the job of demobilizing, of converting soldiers back into civilians.

The discussion of this subject can be abbreviated by stating that we hope at least 90% or over 95% of the job of "detection" is in the past. The rigorousness of Army life and the demands of capable functioning of an individual in the military forces have been pretty largely the determinate on whether an individual is eliminated. "The disposal," so far as the Army is concerned, is entirely directed in one channel, namely discharge.

Review of Army Experience

Undoubtedly it was the intent to review the experience of the Army in the field of selection of men, the efforts made to salvage those who were capable of only limited functioning, and an expression of the Army's interest in those who have been and are being returned to civilian life.

What have we learned regarding "the unfit" for military service? Who are they, and what criteria can be established to identify them? We have learned in the first place that the task is far more complicated than merely the evaluation of the personality structure of a particular individual. We have learned that the answer to these questions of who are the unfit, and what criteria can be used for their detection, may depend far more on the acuteness of the need for manpower than any other factor. When we began the formation of the Army it was to be a quality Army, and very definite and specific instructions were issued to eliminate any personality who seemed to have even minor personality disorder. With the declaration of war it was obvious that we would have to have a large Army, many more than originally thought necessary. The result was to progressively lower physical standards, recognizing that certain provisions could be made for the utilization of many men with slight handicaps. It was recognized that it had to be a citizens Army, made up of a cross section of the country and not merely a select superman group.

There were at least three factors which were relied upon to bring about effective utilization of all available manpower, including those men with limitations, all three of which have proven by experience to be entirely valid. The first and most important was the quality of leadership provided to men. An officer who knew enough or could learn enough about leadership and apply it to his unit might even make combat soldiers out of many individuals who would have been a total loss under inadequate leadership. A second potent factor was motivation, providing a man with the reason, the necessity, the incentive to do his job. Any individual, no matter how badly handicapped physically or mentally, if adequately

* Read at the meeting of the Chicago Institute of Medicine, Chicago, Illinois, November 1st, 1944.

motivated can contribute far more than a perfectly healthy man without motivation. Recognizing this fact, the Army developed an elaborate system of orientation of the soldier to his particular job and the big job of the entire Army, with specially designated officers in every unit. The job of orienting and motivating so huge an Army in so short a period of time has been a colossal one and successful in varying degrees. It has been the more difficult because of the prevailing public attitude which has evidenced very little indication of any threat from the enemy. In comparison to the situation prevailing in Russia and England, it has been absent.

A third factor in the utilization of all types of manpower in the Army has been concerned with the attempt to classify men and effectively assign them to a job within their capacity. The fact that there are approximately eight-thousand (8000) different civilian jobs, and approximately eight-hundred (800) Army jobs makes it obvious that this is no simple matter and many men, in fact every man who goes into a combat situation is obviously "misplaced" in contrast to civilian life. Despite the handicaps, an effort has been made to utilize manpower in its most effective manner. The Army recognized that misassignment with its resulting dissatisfaction was a potential cause of neuropsychiatric casualties.

Another very important general lesson learned through Army experience was the fact that a mild neurotic adjustment to life did not prevent a man from becoming a good soldier. Initially, in the selection of men, such individuals, if spotted, were not taken into the Army. Subsequently, through extensive surveys of men who had been through combat it was learned that the existence of mild neurotic symptoms did not prevent many individuals from becoming successful combat soldiers, and contributing heroic efforts. There is an increasing amount of data to indicate that many men from broken homes, individuals with mild vasomotor disturbances, such symptomatic acts as nail biting and even instances of enuresis, made outstanding combat records. It is argued by some psychiatrists with combat experience that certain types of mildly neurotic individuals are very greatly helped with effective leadership, and apparently find support and solidarity through identification with the group. We have come to the conclusion that there is a larger border line group in which it is impossible to forecast their success in adjustment, even in so strenuous and demanding a situation as combat. The Navy has utilized a very practical method of testing the man by placing him in actual training, recognizing that unless there is a period of observation and trial, it is impossible to adequately judge such individuals. In the Navy "boot" camps, this practice was carried out, and if a man proved to be a misfit he could be discharged on an administrative basis.

A third and probably most important lesson relative to this problem of selection, learned only in combat, is the fact that any man may become "unfit." Just as a machine wears out or breaks down under sufficient stress, wear and tear, so does the human being. Some last much longer than others. The stress of life of a combat soldier defies description. It is an emotional experience which cannot be appreciated unless experienced. The fear, the fatigue, the monotony, the tenseness, the waiting, coupled with the physical discomfort, sleeplessness, the loss of appetite, and cold food all contribute a composite force, which if operative for a sufficiently long period, makes any man "mentally unfit."

Detection

When Selective Service was first initiated, some psychiatrists might have assumed that they could eliminate without question those men who, because of personality disorder, could not function in the military service. Certainly such an attitude prevailed very widely among the medical profession and even among the laity, and as a consequence psychiatry was later blamed with varying degrees of incompetency, sometimes for those men accepted and sometimes for those rejected. Certain major obstacles stood in the way of even beginning to accomplish the job of eliminating all potential psychiatric casualties. In the first place, the size of the

job numerically made it necessary in many instances for one psychiatrist to see as many as two to three hundred inductees in one day. In such instances, an examination consisted of a thirty or sixty second interview and a guess. The number of qualified psychiatrists was limited, extremely limited, plus the fact that the great majority could only base their judgment on their clinical experience in civilian life and with a very limited knowledge of the actual situation that the soldier might meet in the Army. The psychiatrist could only hazard a guess as to the type of leadership that might be provided for a particular man if selected; the majority of psychiatrists never knew anything about the efforts of Army classification and assignment, the effectiveness or ineffectiveness, only trusting that a man would be used in line with his capacity; and at most they could only have a generalized concept of the rigorousness of training and the stress of combat. The amount of historical information available to the psychiatrist about any selectee, until early in 1944, was extremely limited, or non-existent.

The result of this psychiatric screening at the induction center was on the whole very much to the good. It did eliminate many thousands of grossly abnormal individuals who would have been a loss to themselves and the military forces. We must recognize, however, that undoubtedly some men were kept out of the Army who might have made effective soldiers, and on the contrary there is no doubt whatever that many individuals were passed who failed completely. But how much of this failure was due to faulty leadership, inadequate motivation or misassignment, we will never know.

These mistakes did stimulate aggressive even though tardy effort to improvement. Probably the most significant step taken was the inauguration of the medical survey program by Selective Service through which the whole country was organized to provide social data, school records and medical history on each selectee. Obviously, the organization of the entire country to provide such data was not an over-night job. It meant the establishment of central registries in each state. It meant the mobilization and utilization of large numbers of social workers. Even to date, nearly a year after its inception, it is probably not more than 15% to 20% effective, but one must recognize that even if it were 10% effective it would save manpower and money far in excess of its cost.

In view of the fact that the chief medical examiner in the Armed Forces induction stations and in most instances the chief psychiatric examiner, are medical officers in the Army, it was possible for the Surgeon General's Office to issue a very specific directive in April 1944 pointing out that mild neurotic traits were not disqualifying, that a cross section examination of the personality was not adequate to evaluate an individual or decide upon induction or rejection, that the psychological test performed by the psychologist of each Armed Forces induction station should be made available to the psychiatrist, and urging the utilization of the data provided by the medical survey program.

The most recent attempt at improvement has been the development of a selective test given to all inductees, a series of questions so arranged and graded as to indicate those individuals most likely to require special psychiatric investigation. It is unfortunate that this test, as well as the medical survey program, could not have been instituted at the outset, but it can only be hoped that they both may be of considerable value in other fields and among the valuable lessons, resulting from this war experience.

Our conclusions from the actual experience of selecting men for the military service are, first that without greatly refined methods, including education of the examiners, much longer examination observation periods, at most we can only pick out gross presonality abnormalities. These should be eliminated. We must conclude that no selection methods, no type of examination or test, can pick out those individuals who may be successful or unsuccessful in combat, since this success depends on many additional factors besides the personality structure. The third conclusion would seem to be a system somewhat similar to that used by the Navy of a training period immedi-

ately following induction in which there was an opportunity for an easily facilitated and respectable administrative discharge from the service for those men who were misfits. The utilization of the medical survey program data and a selective test at the induction station level will undoubtedly materially aid in the effectiveness of the examination. The sum total of all these improvements, however, can lead only to improved efficiency, never to perfection. It is not likely that it will ever be possible for the psychiatric examination to approach the exactness of the laboratory examination, and this fact should be recognized by all concerned.

Elimination

As was indicated above, it will probably never be possible, no matter how expert a job may be done in selection, to entirely eliminate at the induction level all those individuals who turn out to be misfits in the Army. Certainly it will never be possible to eliminate those individuals who, under distress of prolonged combat, present personality decompensation. Consequently, it will always be a problem for the Army to attempt to select individuals by the most effective methods possible who cannot adjust to Army life. Inseparably coupled with this task is the necessity to attempt to assign these soldiers into specific jobs in which they can function effectively. Under the stress of the war situation, when manpower was so acute, this has been a necessity. Even if manpower were relatively cheap, it would be good medicine and psychiatry and of value to the man as well as the organization. When manpower needs become less pressing, this extra effort might be questioned, but it is hoped that the lessons learned in the war for the effective utilization of manpower will be carried over, not only in the Army, but in civilian life as well. In short, where it is possible to aid a man in his adjustment, to help him function with satisfaction to himself and to his employer (including the Army) such efforts should be made.

Of necessity, in time of war the Army must assume an attitude that if a man could not be placed in any job compatible with his functioning ability, it was better that he not be in the Army. There are too few psychiatrists and too few hospital beds or other suitable accommodations to provide definitive long time treatment for such individuals. If the Army is to have the job of prosecuting the actual fighting of the war, obviously it cannot assume the responsibility for attempting to care for any large groups who could not contribute toward its primary function. The policy has been, consequently, to discharge such individuals from the service. One might say that "elimination" took place largely on the basis of an actual trial for each individual in Army life. If the individual's capability and attitude were such that he could not or would not become adjusted, or if the existence in the Army itself produced too great a stress, the only recourse was and always should be discharge. We may reiterate the statement that at no time should the mission of the Army be to rehabilitate misfits, bad boys, or rundown physical specimens, despite much lay opinion to the contrary.

Disposal

While the Army could not assume responsibility for long time treatment of psychiatric patients, it has been its policy to provide what treatment may be possible, or indicated, within the possibilities of its limited personnel and equipment. It has been the Medical Department's policy to provide as much treatment as possible, recognizing that the Veterans facilities exist for the purpose of providing hospitalization to men discharged from the Army. Even though a man is a non-effective in the Army and is discharged, this does not in any way indicate any lack of interest or appreciation of the man or his problem.

As an indication of this interest, the Army has developed many plans and organized various efforts to aid a man in his adjustment to Army life as well as to salvage a man for further service if it was possible. These organized efforts are in addition to those made by the Classification and Assignment Branch of The Adjutant General's Office to place a man in the right job. In February 1944, recognizing the need for mental hygiene in-

struction and orientation, the War Department prescribed six hours of lectures in mental hygiene for all officers and three hours for enlisted men. This was done with the specific aim of atempting to fortify the individual against personal maladjustment. It was hoped that the officers might profit from a better understanding of mental health, the signs of breakdown in individuals and groups, and what they could do about it. It was hoped that the enlisted man might profit by a frank discussion of the difficulties that he would meet in his adjustment problems within the Army. Many reports indicate that these lectures have been very helpful.

Other preventive efforts of a major dimension have been instituted. In each of the basic training camps the primary function of a psychiatrist assigned to such camps was prevention. It was his function to contact line officers, to concern himself about orientation, to interest himself in morale, in addition to his other important functions of counseling with individual soldiers relative to their maladjustment. Division psychiatrists were appointed late in 1943 to carry on a similar function within each combat division. In addition, the division psychitrist has the very important function of organizing and planning for the treatment of battle casualties. In addition to psychiatric efforts, the Educational and Information Service of the War Department, formerly known as the Morale Service, has a well organized program of orientation for all soldiers, again on the assumption that the more the individual knows about his job and about the Army's job, the more capably can he function. Orientation lectures and films are included in the program of every Army unit.

Further efforts in the direction of salvaging men for duty before consideration of discharge has been the responsibility of the Medical Department, not only in the field units as represented by the division psychiatrists and medical officers, but also in every Army hospital. Very specific directives regarding definitive treatment have been in effect for many months, with the result that many of our hospitals are providing excellent psychiatric treatment. The total results are indeed gratifying with from 50% to 80% of men who break down in theaters returned to duty within that theater. The hospitals within the Zone of Interior have returned from 30% to 60% of their psychiatric patients for further duty. Many of these hospitals maintain an out-patient department, thus preventing actual hospitalization and in addition providing treatment at an earlier stage in the development of maladjustment.

A short experiment of three months was carried on in three basic training camps where retraining was provided for a group of psychoneurotic patients discharged immediately from hospitals. This was successful to the extent that 70% of the entire group were returned to duty, and of that number at least 75% were still on duty some six (6) months later. As a result of combat participation, the number of limited assignment men in the Army increased so extensively that this experiment was not extended throughout the Army. Closely allied to this effort at retraining, was the establishment of eleven (11) large treatment centers for "open ward" psychiatric patients, primarily psychoneurotic individuals, for reconditioning. Many of this group has been returned to duty.

Still other efforts have been made to salvage soldiers with neuropsychiatric difficulties. At one port hospital, a large percentage of the patients are rehabilitated by being given part time or full time jobs while actually in the patient role, jobs within the hospital and jobs on the post. In many locations, groups of such patients have been assigned to the same unit for rehabilitation and with non-combat functions. No actual labor battalions have been formed in the American Army although the British report a high degree of success with their armed and unarmed pioneer groups. These latter, however, are mild mentally defectives which in the American Army were eliminated largely at the induction center level or at the training center level. When all of these treatment and salvage measures fail to save the soldier for further duty, the only course left is discharge from the Army. The proc-

ess may be a medical one, or, under certain circumstances, by direction of a military board of line-officers following the recommendation of a psychiatrist. These methods have not been entirely satisfactory, for the reason that in many instances the man appears sick to the line-officer group, but is regarded by the psychiatrist as being a misfit and not justifying a medical diagnosis. Diagnostic nomenclature in Army psychiatry has been a difficult and unsolved problem. Every Army psychiatrist is all too familiar with the clinical picture of the ne'er-do-well, inadequate personality, often with some neurotic expressions, whom he recognizes will probably not be effective and the line-officers are sure that he is not effective. To discharge him with a diagnosis of psychoneurosis is inaccurate and equally unfair to him and the Army. That this often happens is due only in part, to Army regulations. It is also due to a lack of any suitable descriptive designation, medical or otherwise, for these individuals. Nomenclature is equally perplexing as applied to battle casualties. We have had such terms develop as "operational fatigue," "battle fatigue," "blast neurosis." None of these are satisfactory nor is there any adequate term to designate the clinical picture seen in some combat soldiers, who, after long fighting, reach a stage of ineffectualness. Most such soldiers di not initially show conspicuous neurotic symptoms. Instead, they present a picture of haggard, weary, tense, apathetic helplessness.

Consequently, regardless of the statistics of various diagnostic casualties, every Army psychiatrist appreciates that an analysis of such figures will be meaningless. He is constantly confronted with the practical necessity that the man cannot fit into the Army and consequently, for the man's good and the good of the Army, he must be discharged.

When a man is discharged, it is with the hope that the civilian community will accept the responsibility of aiding the man in his re-establishment within the community. While the Army has no definite responsibility, it has a very vital interest in these veterans. The provision by the community of psychiatric treatment facilities, in fact all medical treatment facilities in relation to the veterans who may live in their own homes is a paramount need. In addition, however, it is hoped that the community will prepare itself to provide special counsel and advice in many fields of activity of the returned soldier. He will need aid and assistance in employment, some of which undoubtedly can be supplied by the United States Employment Service, but this should not minimize the organization and efforts on the part of the community for the returned soldiers in that community. Similarly they will need counsel and advice about education, about vocational training. They will be tremendously benefiited by organized recreational efforts. All of these opportunities confront every community in America. They should command the support and interest and active participation of the medical profession of America.

Conclusion

The detection, elimination and disposition of potential and actual psychiatric casualties in the Army has been the stimulus for most of the psychiatric efforts carried out in the Army. To accomplish these three purposes, each of which presented separate and more or less distinct problems, the neuropsychiatric organization was so planned that an attack could be made on each with a correlation between them. The result was to direct a large number of psychiatrists almost entirely to the job of detection, another large group to undertake prevention and thus prevent elimination, and still a third large group to devote their efforts to treatment and disposition. In all three fields, many lessons have been learned—lessons which it is hoped will be carried over, not only to the post-war Army or to future emergencies, but particularly to their application in civilian life.

Problems of the Rejected Man*

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A great deal is being said and written at this time in regard to the men who are returning or will in the future return to civilian life from the military or naval service. It is entirely proper that they be given every possible help in their problems of readjustment, and it is likewise evident that a complete understanding of their emotional reactions is of the highest importance to those who are in a position to give this aid, for without such insight nothing truly helpful can be accomplished. At the same time, however, we must recognize that the men and women who enter the service are not the only individuals who may suffer dislocations and maladjustments of personality by reason of the war. The present mobilization of industry, which involves such factors as employment of persons who do not enter industry in times of peace, disruption of home life, changes in residence, difficult conditions of housing, etc., as well as the inevitable demobilization of the civilian worker, must necessarily cause psychiatric difficulties in a certain portion of the population who find that the adjustments required are greater than they can meet. Additional problems result from the fact that many men are called for induction into the armed forces and, usually much to their surprise, are rejected because of defects whose existence they had not realized. When the rejection is for some neuro-psychiatric reason, the possibility of emotional disturbance is particularly great. The man is told that he is rejected for 'nervousness.' This term suggests to him something obscure and mystical and, perhaps, something of which he should feel ashamed. He is upset by what has happened and he needs help in going through a difficult period in his life.

For the past two years, a social worker has been stationed at the Milwaukee Induction Station who interviews rejectees and offers them the services of such agencies as exist in their home communities.[1,2] Many of these men are rejected because of psychiatric conditions. Some of them feel the need for help either because of the fact of rejection or because of a recognition of the problem that caused it and the need of aid in dealing with the condition. Where the man has not been able to afford the services of a psychiatrist in private practice, he has been referred to the Guidance Clinic. Exact figures in regard to the percentage of those referred who actually came to the Clinic are not available, but it is our impression that about one-half of them actually made and kept their appointments. A recent survey of our records brought to light some 44 men who were seen on referral of this worker. That half of them were under 20 years of age and two-thirds under 22 years is probably due to the chance factor that they were seen at a period of military mobilization when the great bulk of inductions was at these ages, and when most of the otherwise available older men had already been called for examination. The records of these 44 men were studied in order to survey the types of problems which they presented and the sort of help which they needed.

We may first ask what the patient saw as his reason for visiting the psychiatrist. One-quarter of these men definitely wished some help in getting into the military or naval service. They were not satisfied with having been rejected. Some wished real assistance in straightening themselves out and improving to such a degree that they would be accepted when re-examined at some future time. A few were able to profit so well from the advice or the brief psychotherapy given to them that they were later accepted. There may have been more of these than we knew about, since our knowledge is limited to those who were thoughtful enough to tell us

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about it. All of them were under 23 years of age. The following cases are typical, although extreme:

R.O., aged 21, brought with him his high school annual to show how disfigured he had been by protruding upper teeth. Other boys had teased him throughout his school years until he had developed a shy, seclusive personality as a form of defense. Rejected a year previously because of his personality traits, he underwent a surgical operation on his mouth. After his defect had been corrected, he deliberately set out to make the social contacts which his newly-found self-confidence justified. When seen by the psychiatrist, his superficial personality had altered to so great an extent that we were justified in asking his Local Board to send him for a re-examination, which resulted in his acceptance by the army.

R.K., a boy of 19, complained of being 'flunked by the psychiatrist.' He showed an almost schizoid type of personality, with many peculiarities and inability to adjust himself socially. As a result of psychotherapy of a superficial sort and of advice as to the conduct and regulation of his life, he showed marked improvement in his reactions and behavior. This continued in spite of a second rejection, and he has finally been accepted.

Our contacts with these patients have not always been sufficiently intensive to disclose the deeper motivations behind the insistent desire to enter service. One prominent motive, however, has been furnished by the teasing which they receive as "4-F-ers." This proved to be a problem to some men who were otherwise quite willing to accept the fact of their rejection and who did not ask our help in regard to future acceptance. Another important factor is a feeling of isolation. Their former friends and, indeed, almost everyone of their own age are in service, so that they are left without companions and have difficulty in finding activities to interest them. A few fear that their future vocational adjustment will be interfered with because they stayed at home, although this fear is more prominent in older men who realize more fully the preference that will be given to veterans after the war. Many other reasons for desiring to enter the service were given by these young men, but such reasons were essentially rationalizations and were not directly related to the true motivation.

In this connection, it is worth while to note that the great majority of these rejected men did not object to their rejection as such. At least two-thirds of them either were satisfied not to be taken into the army or navy or else were actually glad to know that they would not have to enter one of the services. There were only four or five men, in addition to those mentioned in the preceding paragraphs, who showed any resentment or other ill feeling over rejection, and these few were not impelled thereby to make any further efforts to have themselves accepted.

About a quarter of these young men come to the Clinic because of worry over the basis for their rejection. They had been told that it was because of 'nervousness.' They had never thought of themselves as 'nervous.' Now they began to believe that there must be something wrong with them, and they desired help to overcome it.

E.K., a young man of 25 years, possessed of good intelligence, was rejected because of psychoneurosis. He had had some gastric upsets, but thorough study including X-rays had yielded only negative findings. There was a history of nail-biting and somnambulism, both of long standing but now seldom manifested. Study of the patient's personality and of his emotional structure brought to light no major conflicts either in the present or the past. While the history suggested an anxiety hysteria, he was too resistive to discussion of his personal problems to be a good risk for psychotherapy. He was, therefore, given re-assurance to the effect that his rejection did not mean that he was mentally unbalanced. This re-assurance appeared to meet his needs, for he made it quite clear that he desired no further help.

The majority of these rejectees need reassurance more than anything else. It must be explained to them that the doctors at the Induction Station were concerned with their probable adaptation to military life and with nothing else. A man may get along beautifully as a civilian, yet break down under the stresses incident to being in the service. These include regimentation, loss of freedom, homesickness, loss of privacy, and the demands of group life, as well as the fears and horrors that come with actual combat. When the examining physician feels that a man would not 'stand up' under these

strains, he is not saying that the same man will not adjust well in civilian life. Even less is he saying that the man is mentally ill. All this must be explained to the rejectee in some detail. If the man is to be helped, his situation must be discussed at sufficient length for him to accept it. He must be relieved not only of any suspicion that he is mentally sick, which he doubtless regards as something disgraceful, but even of any feeling that he is marked off from others by reason of his 'nervousness.' One individual caught from the army examiner the suggestion that he was insane. This case was quite unusual, for the man was in the early stages of schizophrenia, with active hallucinations, and we eventually had to arrange for his hospitalization.

The diagnostic terms used by the induction stations present an added difficulty. Army regulations change from time to time, so that similar conditions receive different names at different times. Moreover, there is a real desire to protect the rejectee by making it difficult for the local board to understand the true diagnosis, since they are laymen and probably neighbors. This leads to a policy of concealing the diagnosis under some easily accepted rubric, such as 'psychoneurosis, neuraesthenic type' or 'emotional instability.' We carefully explained to the patient the protective use of these terms. The true diagnosis is usually one that the physician will easily recognize from the descriptive statement which follows the more general name. For example, 'Psychoneurosis, neuraesthenic type, manifested by: (1) seclusiveness; (2) schizoid traits; (3) poor social adjustments,' is actually a description of a schizoid personality or even of an early schizophrenia.

There were only four rejectees in our group who did not feel that there was some personal problem for which they needed help. These four, as might be expected, came to us at the solicitation of others: family, physician, or social worker. There were probably others among those who failed to make any effort to get in touch with the Clinic or who failed to keep their appointments. It is to be noted, however, that these four all presented definite abnormalities, such as psychopathic trends, emotional instability, and anxiety. Their attitude towards the Clinic made them poor subjects for therapy.

The remainder came to us for help in dealing with a pre-existing difficulty, usually the one upon which their rejection had been based. For some, the fact of being rejected brought the trouble so clearly to the fore that they were impelled to actively look for aid which they had previously only vaguely desired. For others, the interview with the social worker at the Induction Station opened an opportunity for help that they had not previously known about. The problems which bothered them included such things as multiple somatic complaints, fainting spells, atypical seizures, speech defects, somnambulism, nightmares, poor vocational adjustment, inability to make friends, and various forms of tension when under pressure, speaking in public, etc.

> A.Z., aged 29 years, accepted his rejection quite easily. He wished help in overcoming a multitude of aches and pains, as well as his great fear of illness and death. He was given brief and intensive psychotherapy for some six one-hour visits. It became possible to trace his difficulties first to the death of his father and its attendant emotional conflicts, and later to a definite mental trauma which occurred when he was hospitalized for an operation while a small child. Religiously inculcated feelings of guilt and fears of punishment were found to play a part in the difficulty, together with social maladjustments while in school. As the patient began to gain insight into his mental mechanisms, his somatic complaints gradually diminished in intensity and definite progress was made in the direction of better health.

These difficulties are not, of course, in any sense the result of rejection. They are the types of problems that are seen in any clinic. Indeed, four of the men included in the study had been seen by us in previous years for some personality or behavior difficulty. Rejection has in certain cases accentuated the already existing trouble. The rejectee now has to face additional hazards. Since he has had difficulty in meeting the demands of life before, he is likely to have even greater difficulty in the future. Added to his other troubles is the fact that he has been rejected as 'nervous' and the

teasing and discrimination that is his lot as a "4-F-er." There is a new problem to be met. Several patients felt so ashamed of their rejection on neuropsychiatric grounds that they invented physical defects which they can tell their friends was the cause of their not being accepted for the army. This is not always easy, for the defect must be a concealed one so that its fictitious nature will not be discovered. The use of such a compensating mechanism shows clearly the importance to the patient of his feeling of shame. The greatest help that the physician can give at this point is to aid the man in accepting his condition as nothing to be ashamed of. Such an attitude also opens the way for later therapy directed at the disability itself.

A rough characterization of the types of men seen in this group is of some interest. Chronic anxiety was the most frequent, and appeared in fourteen out of the total group of forty-four. Ten were seclusive or even mildly schizoid, while one patient, mentioned above, was an early schizophrenic. Seven evidenced the marked conversion symptoms of hysteria. An equal number showed emotional instability or emotional immaturity. Four might be best described as either psychopathic or inferior personalities. These figures, while of no statistical importance, indicate the type of men who are seen under these conditions.

Most of the patients were seen for only a single interview. In many cases, the necessary advice and re-assurance could be given in one hour. Some did not feel any need of further help and either refused the offer of additional therapy or failed to keep later appointments. A few were referred elsewhere for help—to specialists in speech correction, internists, etc. About a quarter of the patients were given brief psychotherapy, amounting to not over ten hours, with relatively satisfactory results.

The fact that stands out most clearly in our survey of these cases is the great preponderance of psychiatric problems which had existed for many years prior to the rejection. Taken as a whole, there were relatively few new difficulties arising out of the rejection itself. These were not inherent in the patient, but stemmed primarily from the attitude of the community toward the young man not in uniform. To the unstable, upset personality they became a real menace. Such a personality cannot face being teased, nor to be brought to a too frank a realization of his own shortcomings and conflicts when he is labeled as 'nervous.' The rejected man feels out of place in civilian life when all his friends are in service. A robust personality is needed to meet the situation. When it is lacking, the understanding physician is the person who can best stretch out the helping hand necessary to carry the man over a difficult period in his life and aid him to retain his existing level of mental health and, if possible, to improve it.

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CHARLES D. ARING, M.D., *Editor*

CASE No. 44-2976

Presentation

A 30 year old unmarried, white woman was well until April 21 when she complained of dizziness and inability to read after wearing new glasses. The morning of April 22 she tried to lie on a couch before breakfast when she suddenly said, "Oh, Mother," fell, became nauseated, vomited, and had a stiff neck. She did not lose consciousness.

Her family physician observed that she had ptosis of the right lid, a dilated left pupil, and "mumbled" speech. While under his care for five days she continued to have ptosis of the right lid, stiff neck, slight fever (100.6), and her speech improved.

When the patient was seen by a neurologist on April 27 she stated that she had intermittent frontal headache. She complained of precordial pain, in the neck and in the chest with deep breathing. She said she could not see out of the right eye and that sight in the left was not good either. The left arm and leg felt like they were "pulling up."

The past history revealed that at the age of 3 1/3 years she was pushed off a high porch by a playmate. She struck her head, did not cry, and was not unconscious. Three or four years later, at the age of 6 or 7, she began to fall frequently on account of poor control of the left leg. The left toes gradually turned in and the left forearm flexed. This condition progressed so that she always limped on the left lower limb and the left extremities were atrophied, the left arm was flexed at the elbow and wrist. This handicap did not prevent her from going to school and taking an active part in community life.

On examination on April 27 she was mentally dull but her memory was accurate. Smell was not tested. The left disc was pale; on the right the superior and inferior margins were blurred. The vessels were tortuous, the A-V ratio was 2:3. There was a left homonymous hemianopia. There was a complete right third nerve palsy, the right pupil was fixed at 7 mm., and the right eye was rotated downward and outward. The left eye was ophthalmoplegic, the only movement possible being to the left. There was some nystagmoid jerking of the right eye and spontaneous "jelly" nystagmus bilaterally. The left corneal reflex was reduced. There was a right facial weakness. There was stiffness and pain on anteflexion of the head; lateral movements were free.

There was atrophy and tonal increase in both left extremities. The left forearm was held in flexion. Posture was normally maintained with the right extremities and could not be tested on the left. The right grip was normal and the left weak. Coordination could not be tested on the left and was somewhat ataxic in both the right finger to nose and heel, knee, to shin tests.

The left biceps reflex was increased; both triceps reflexes were reduced, the abdominals were normal. The left knee jerk was increased. The right ankle jerk was reduced; the left ankle was ankylosed. All plantar responses were extensor.

There were marked pulsations in the neck and suprasternal areas.

She was admitted to the hospital on April 27. She could be aroused with difficulty, the right lid was closed and the left eye partly closed. The pupils were fixed to light. General examination revealed a forceful precordial impulse and a rough systolic murmur over the entire precordium, being loudest in the mitral area. There was a snapping second sound, A2 was greater than P2. Blood pressure was 130/78; temperature 100.4 degrees F., pulse rate 100, and respirations 20.

Course: On May 1 she became more drowsy. There was bilateral ptosis, and left facial weakness. The left lower and

right extremities could be moved voluntarily. The plantar responses remained extensor.

On May 4 a loud systolic murmur was heard all over the head. There was no exophthalmos or signs of cavernous sinus obstruction. She had extensive epitaxis on May 3 and 4.

Intravenous fluids were given from the seventh to sixteenth hospital day, and nasal feedings thenceforth. On May 10 she was stuporous. There was edema of the right eyelids and face. The face was possibly slightly cyanotic. The pupils were fixed, the left 6 mm., the right 5 mm. in diameter. The vessels in the neck were full and pulsating. She responded enough to show her teeth and tongue, and to squeeze the right fingers shut. Both plantar responses were extensor. The stupor progressed and she expired on May 18, the 21st hospital day.

The temperature ranged between 100° F. and 103° F. The pulse rate ranged from 80 to 130, most often between 90 and 110 except for a terminal rise to 140. Respirations ranged between 25 and 40.

Laboratory Data: Urine normal. Red blood count 4.7, white blood count 12.3, hemoglobin 14.4. Polymorphonuclears 79, lymphocytes 15, mononuclears 4, eosinophils 1, basophils 1. Blood Kline negative. May 8—Blood culture negative; April 27—CSF pressure 230 mm., grossly bloody fluid. Total protein 162 mg., 50 lymphocytes, 25,000 red blood cells, Wassermann negative. May 3—CSF pressure 260 mm., amber xanthochromic. White blood cells 75; Differential —Polymorphonuclears 27%, lymphocytes 71%, mononuclears 2%, 3,250 red blood cells per cmm.

Differential Diagnosis

Dr. Charles D. Aring: It seems that there were two lesions operating to cause this death: (1) relatively acute, and (2) a long-standing disorder possibly beginning in infancy and first manifesting itself at the age of six or seven.

I want to discuss the acute and catastrophic process first. I think all of us would probably agree that this woman had an aneurysm or aneurysms at the base. Surely she had a spontaneous subarachnoid hemorrhage from a leaking vessel at the base, which may be held accountable for all of the cranial nerve signs and, of course, the acute symptomatology which consisted essentially of headache, nausea, vomiting, and stiff neck.

I think there was a large aneurysm at the rostral extent of the basilar artery, and if so it must have been extremely large since it involved the third nerve and possibly the seventh nerve on the right, and on the left the third, fourth, sixth, and fifth nerves.

The pallor of the left optic disc would indicate a lesion of long duration. Therefore there must have been another lesion rostrally placed, and I would think on the anterior communicating or at the junction of the anterior communicating with the left anterior cerebral artery involving the left optic nerve.

One or the other of these lesions leaked, and I would suspect that the one arising from the basilar artery was the one which did. We know that if one aneurysm is present at the base there may be others. Presumably the most of these defects in vessels are congenital as a rule, regardless of what age the patient has attained when it leaks.

So much for the acute process, which leads directly to the question of what happened to this girl during infancy. I mentioned something about the left optic atrophy which is an important lead in the case, and I said that this sign might have been due to an aneurysm rostrally placed. I think another possibility is that the left optic nerve was involved in the long-standing clinical disorder, which I referred to as a second process in my opening remarks.

What is the old lesion that produced hemispheral signs, beginning about the age of six or seven? Surely all of us recognize that this woman had a right hemispheral lesion; there are subtle insinuations that the left hemisphere was involved also, and also the cerebellum. The evidence for left hemispheral lesion is the fact that tests of coordination were not well performed in either right extremity, and the right facial weakness, though one cannot determine from the information at hand whether the facial

weakness was due to involvement of the seventh nerve or nucleus, or whether it was the result of involvement of the lower portion of the left motor strip. There were bilateral extensor responses in a patient who was relatively alert and who survived for three weeks after they were first found. This would be against intrahemispheral hemorrhage which may produce bilateral pyramidal tract signs, and would tend to indicate to me that there was something in the left hemisphere as well as in the right, which was not hemorrhage of the ordinary variety. This patient did not have hypertensive disease and she was rather young; one isn't inclined to postulate intracerebral hemorrhage of the usual type in this individual.

I think the spontaneous or "jelly" nystagmus as it was called deserves a word. Possibly the vestibular portion of the eighth complex might have been involved in bleeding at the base. I would be rather inclined to consider connections between the vestibular nuclei and cerebellum at fault. We see such spontaneous nystagmus quite frequently in acute cerebellar lesions, and I have the idea there is going to be something in this cerebellum.

What is the nature of this long-standing lesion present in the right cerebral hemisphere and involving the left as well? There are some clues. The onset was in infancy and manifested by repeated falls. I hesitated a long while over the word "falls," because young children are not likely to be falling repeatedly, particularly when there is a chance for compensation to occur, as there was here. Usually a child with such lameness of a leg is rather difficult to throw off his feet. I suspect that these "falls" may fit into the category of epilepsy. If so, one would think of negative epilepsy in the sense of Hughlings Jackson, who pointed out many years ago that an extremity or extremities may suddenly become paralyzed because of epilepsy, of which there need be no other external evidence. This girl may have been having fits in infancy. The slow progression certainly indicates a growing expanding type of lesion in which fits might be expected to occur, particularly if it were a cortical affair.

Tortuous retinal vessels are mentioned, and there was widening of the arteries in the retina. We must recall that this patient had no signs of peripheral vascular disease except possibly in or about the heart. She did not have hypertension. A most important clue is the marked pulsation in the neck and substernal areas, which with what I think about the nature of the brain disease, indicates that the carotid arteries were dilated. There was a forceful precordial impulse and a rough systolic murmur over the precordium. On May 4 there was heard a loud systolic murmur all over the head. One wonders if the latter had not been present before it was first found and whether this bruit could have been eliminated with pressure on the carotid artery or arteries. Other clues are the epitaxis which occurred two weeks before death, the edema of the right lids and face which was present about ten days before death, when again there is mentioned pulsating vessels of the neck.

How can one assemble this information to aid us in divining the nature of the lesion in the hemispheres? We have already postulated leakage from an aneurysm at the base. I think the information could be fitted together under the diagnosis of arteriovenous aneurysm or arteriovenous angioma, in which a tangled mass of dilated veins may be found overlying the hemisphere and penetrate into the parenchyma of the brain. These vessels pulsate and contain arterial blood. Usually a large artery supplies the lesion. Also there is a bed of dilated vessels which occupies the position of the capillaries through which there are numerous arteriovenous communications. The usual findings of arteriovenous aneurysm or in angioma are audible bruit and palpable thrill in the head, neck, and upper chest. Such lesions are found on the lateral surface of the hemisphere and arise usually in the distribution of the middle cerebral artery, though they may be found elsewhere. The walls of the vessels may be calcified and not infrequently contain thrombus. With the usual distribution in the middle cerebral artery one would expect motor signs first,

which this girl had. The usual onset is with Jacksonian convulsion followed by transient weakness in the limbs convulsed; hemianopia and aphasia are occasionally seen. Repeated hemorrhage is not an uncommon phenomenon in arteriovenous angioma. Papilledema finally presents, and is thought to be due to distention of veins by arterial blood. These patients usually complain of noises in head and bruit during systole. In a large percentage of cases bruit is heard over the eyes. If the scalp is shaved dilated veins may be seen. Cardiac dilatation and hypertrophy are described. Arterial blood has been seen in retinal veins and there may be vascular anomalies in retinas. Sometimes the roentgen studies reveal shadows within the brain substance. The course of the disease is slow and many years may elapse between the first symptom and the development of disability.

The cardiac findings associated with these angiomas have been rather thoroughly studied; dilatation of the heart, widening of the mitral ring, systolic murmur, and the insufficiency together with low systolic and diastolic blood pressures with rather wide pulse pressure, usually but not always result in the signs of aortic regurgitation. Throbbing arteries in the neck, and mild tachycardia have also been described.

I think in differential diagnosis of the hemispheral lesion one would have to consider telangiectasis; a high percentage of such patients suffer from mental deficiency besides the hemispheral signs. Telangiectasis is usually associated with naevi of the face, one doesn't find bruit nor does one see excess vascularity of scalp which may be seen in arteriovenous angioma, and they do not proceed to arteriovenous fistulae.

It is possible in this case that the rete of vessels dipped downward under the right hemisphere and in some manner involved the left, but not the right, optic nerve, crossing the midline at this point to implicate the base of the left cerebral hemisphere.

I don't know how the cerebellum was involved. The spontaneous nystagmus indicates to me that it is affected and the congenital vascular anomaly or neoplasm may implicate this structure too.

Clinical Diagnosis

Aneurysm of the circle of Willis, or possibly of the right internal carotid artery.

Doctor Aring's Diagnosis

Aneurysms of circle of Willis, at the rostral extent of basilar artery and in anterior communicating or the junction of the anterior communicating with the left anterior cerebral artery involving the left optic nerve. Recent rupture of one of these vessels, presumably the basilar.

Arteriovenous angioma in the distribution of the right middle cerebral artery and possibly involving left middle cerebral artery.

Dilatation of internal and external carotid systems bilaterally.

Retinal arterial dilatation.

Hemorrhage from dilated nasal arteries.

Compensatory cardiac dilatation with relative mitral insufficiency.

Congestion of the viscera and terminal lobular pneumonia.

Anatomical Diagnosis
(Brain Only Examined)

Cavernous angioma involving (1) practically the entire right cerebral hemisphere, (2) the left paraventricular area (third ventricle), (3) the left optic nerve, (4) the midbrain, (5) the upper third of the right pons, and (6) some of the foliae of the cerebellum.

Aneurysms (unruptured) of the (1) rostral tip of the basilar artery, (2) junction of the left internal carotid and posterior communicating arteries, and (3) of the anterior communicating artery.

Discussion of Pathology

Dr. I. Mark Scheinker: Permission was granted to examine the brain only. On gross examination of the brain the right hemisphere was covered by a carpet of grossly dilated blood vessels of considerable size, some of them measuring 10 mm. in diameter. The carpet began almost at the tip of the frontal lobe and extended backward to the tip of the occipital pole. The mesial and lateral surfaces as well as the undersurface of the right cerebral hemisphere were affected by the same type of

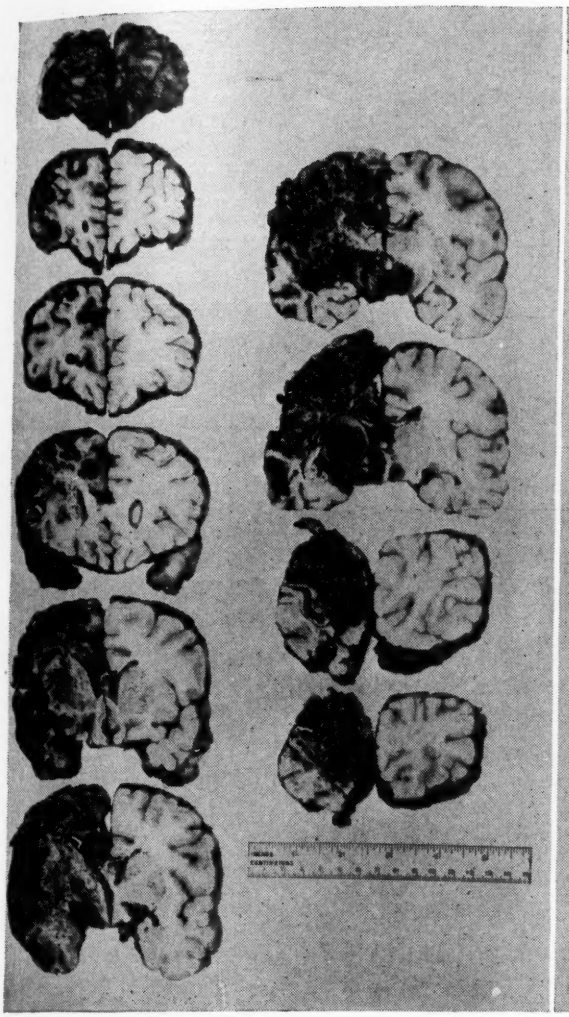

Figure 1. Photograph of coronal sections of the cerebral hemispheres cut at 1.5 cm. thickness. Note that the cavernous angioma crosses the base to involve the left paraventricular (third ventricle) structures.

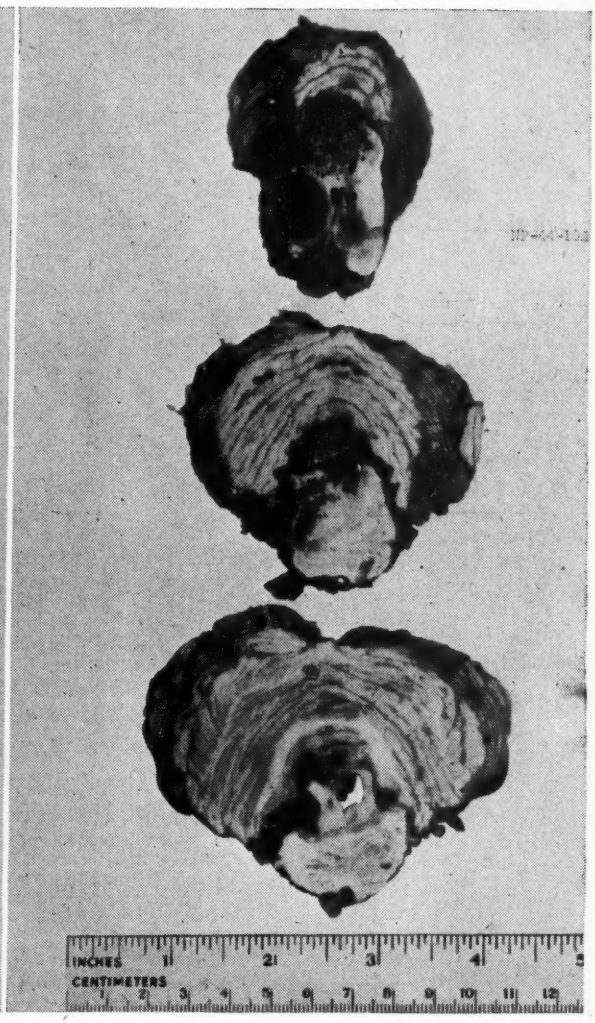

Figure 2. Photograph of coronal sections of the cerebellum, midbrain, and pons.

vascular change. The surface of the left hemisphere appeared essentially normal except for the presence of a few dilated and tortuous blood vessels overlying the gyrus rectus. The process extended across the base to involve vessels about the cranial portion of the left internal carotid artery.

At the bifurcation of the basilar artery into the posterior cerebrals, there was a heart-shaped dilatation of considerable size, an aneurysm. There was a second aneurysmal dilatation at the junction of the left internal carotid and posterior communicating arteries. A third aneurysmal dilatation presented in the region of the anterior communicating artery.

Coronal sections through both hemispheres showed that except for the frontal pole practically the entire gray and white matter of the right hemisphere was invaded and destroyed by many vessels of different size and shape (Figure 1). The right basal ganglia appeared partially preserved, and contained a large number of distended small veins and capillaries. The paraventricular area about the third ventricle was destroyed on both sides by the abnormal blood vessel formation. The rostral portion of the brain stem was, save for the left peduncular area, rather completely destroyed by numerous vascular channels. The lower two-thirds of the pons was preserved; the tegmentum was

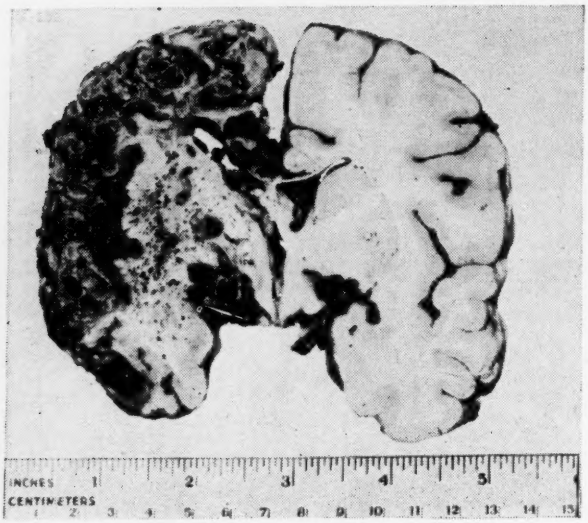

Figure 3. Photomicrograph of the vascular tumor; right parietal lobe. Hematoxylin and eosin. x 125.

infiltrated by smaller blood vessels invading the periaqueductal region (Figure 2). The cerebellum was for the most part grossly normal, though the foliae adjacent to the fourth ventricle were destroyed by the same process, as were the foliae adjacent to the brachium conjunctivum on the right (Figure 2). Gross extravasation of blood had not occurred anywhere in or about the brain.

The microscopic examination disclosed the typical findings of cavernous hemangioma; widely dilated blood channels were separated by a minimal amount of connective tissue (Figure 3).

In general, two large groups of central nervous system vascular malformation are distinguished:—(1) the angiomatous malformations and (2) the true neoplasms, or the so-called hemangiomas. The main characteristic of the former is the presence of preserved but secondarily changed nervous tissue between the vessels. Such nervous tissue is absent in the true tumors.

Among the latter is the hemangioblastoma, which is composed of a fine network of capillaries and a very cellular interstitial tissue composed of hemangioblastic cells, and most frequently found in the cerebellum. Usually they are sharply circumscribed and frequently form large cerebellar cysts. This tumor is well known since Lindau's classical description. Another tumor type is termed angioma cavernousum which histologically consists of widely dilated blood channels. It is quite evident that our case belongs to the group of cavernous angiomas.

According to Dandy vascular tumors represent five per cent of all brain neoplasms. In some cases (18 per cent) multiple tumors of the same character are scattered throughout the brain. Their most frequent localization is the fronto-parietal region; they are seldom found in the occipital lobe.

By far the most common clinical manifestation is focal epileptic seizures. This is largely due to the fact that most of the tumors are localized in the cerebral hemisphere near the Rolandic area. Signs of increased intracranial pressure are rare. Tumors involving the brain stem (a relatively rare occurrence) cause the most profound loss of function.

Dr. John Romano: Are there arteries and veins in angioma formation?

Doctor Scheinker: It is difficult to say whether they are arteries or veins. In vascular anomalies the differentiation is easy, but not in a tumor formation such as was present in this case.

Dr. Aring: The reason for the final, acute episode has not been elucidated by this exposition. Granted that the patient had cavernous angioma which was widespread and which had been operating over many years, she did not have the extravasation of blood that both the clinical symptoms and the cerebrospinal fluid analyses led us to expect.

Possibly the recent growth of this tumor had been so rapid that compensatory mechanisms relatively adequate in previous years, were overwhelmed. One might consider whether or not functional vascular changes with diapedesis, as unknown as to cause as the mechanism of sudden acceleration in tumor growth, were operating.

There were aneurysms at the base which may have compressed cranial nerves, though there is more reason to suspect that the dilated vessels within the brain stem itself may have compressed nuclei and axones in the parenchyma.